



NATIONAL TRANSPORTATION SAFETY BOARD

**Office of Aviation Safety
Western Pacific Region**

CATALOGUED PARTS

**NTSB Accident: WPR17FA013
Accident Date: October 25, 2016**

Examination Dates: Oct 25 – 28, 2016

This document contains 24 embedded images
Images courtesy Continental Motors, FAA, Google, NTSB, & Textron Aviation

A. ACCIDENT

Location: Pittsburg, California
Date: October 25, 2016
Aircraft: Beechcraft A36 'Bonanza', N364RM, Serial # E-2957
NTSB IIC: Michael Huhn

B. EXAMINATION PARTICIPANTS:

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C. SUMMARY

On October 25, 2016, about 1220 Pacific daylight time, a Textron Aviation (Beechcraft) A36 Bonanza, N364RM, was destroyed when it impacted powerlines and terrain in a steep descent shortly after departure from Buchanan Field Airport (CCR), Concord, California. The private pilot/owner and the certificated flight instructor (CFI) received fatal injuries. The personal flight was conducted under the provisions of Title 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed.

The airplane struck two high tension powerlines and then the ground. The powerlines were oriented approximately perpendicular to the flight path, and were struck about 300 feet prior to the ground impact point. Several dozen fracture-separated sections of the airplane, consisting primarily of empennage and right wing fragments, were scattered below the powerlines, and in the field between the powerlines and the impact site. A post impact fire consumed most of the airplane at the impact site.

On-site and post-recovery examinations of the airplane indicated that all primary flight control surfaces were present at the time of the accident.

No evidence consistent with in-flight fire, in-flight structural failure, catastrophic engine failure, or bird strike was observed on any of the parts.

D. SEPARATED/CATALOGUED PARTS

1.0 Documentation Methodology

- Several dozen separated parts that were expected to be identifiable as known components of the airplane were identified for cataloging into a database;
 - Most were situated on the ground between the powerline strike location and the main wreckage, but some were near the main wreckage
 - None of these parts were observed to have any thermal damage, evidence of fire or sooting, or any biological (such as bird or occupant) material on them
- Database information for each part included:
 - Unique identifier (numbers 1 through 49) affixed to each item
 - Latitude & Longitude
 - Photograph(s) of each item (see separate document in NTSB public docket)
- Subsequent to the database cataloging, the parts were recovered for further examination and identification

2.0 Database Results

ID #	Component Identification	Latitude	Longitude
1	R Elev Outbd	37.97004	-121.89672
2	R HS Outbd	37.96988	-121.8967
3	VS Fairing	37.96987	-121.89662
4	Pwr Line Frags	37.9696	-121.89657
5	R Wing TE	37.96984	-121.89634
6	R Tip aft	37.96956	-121.89636
7	R Tip Rib	37.96982	-121.89648
8	R Rudd bottom	37.96981	-121.89648
9	L Rudd bottom	37.96981	-121.89648
10	L Elev inbd	37.96994	-121.89641
11	R HS LE	37.96994	-121.89641
12	L Elev inbd	37.97002	-121.8965
13	R Ail Inbd	37.96997	-121.89656
14	R Tip Fuel line	37.96991	-121.89631
15	L HS Inbd Bott skin	37.96998	-121.89643
16	VS LE lower	37.96988	-121.89627
17	R Ail Mid	37.96999	-121.89599
18	R Wing LE & Tip tank	37.96993	-121.89592
19	MLG tire	37.97016	-121.89603
20	MLG wheel	37.97008	-121.89599

KEY

Ail = Aileron
Bal = Balance
Bott = Bottom
Elev = Elevator
Fus = Fuselage
HS = Horizontal Stabilizer
Inbd = Inboard
L = Left
LE = Leading Edge
MLG = Main Landing Gear
NLG = Nose Landing Gear
Outbd = Outboard
R = Right
Rudd = Rudder
TE = Trailing Edge
VS = Vertical Stabilizer
Wt = Weight

ID #	Component Identification	Latitude	Longitude
21	L Wing LE skin	37.97005	-121.89589
22	LMLG piston & scissor	37.97005	-121.89581
23	L Elev Outbd	37.97032	-121.89614
24	Tail Cone	37.97028	-121.89615
25	L Elev mid	37.97018	-121.89615
26	R Ail Outbd	37.97016	-121.89615
27	Rudd Bal Wt	37.97015	-121.89634
28	RH HS aft spar	37.97019	-121.89656
29	VS fairing	37.97004	-121.89631
30	Rudd	37.97022	-121.89636
31	VS	37.97028	-121.89634
32	R Elev Bal Wt	37.97025	-121.89605
33	R Elev Inbd	37.97035	-121.89599
34	L & R HS	37.97031	-121.89585
35	Cabin roof	37.97033	-121.89571
36	RMLG Inbd Door	37.97038	-121.89561
37	R Wing Spar	37.97038	-121.89561
38	R Wing LE	37.97036	-121.89561
39	MLG Tire	37.97026	-121.89556
40	RMLG strut and hub assy	37.97019	-121.89565
41	R MLG Outbd Door	37.97027	-121.8957
42	Fus Skin	37.97023	-121.8957
43	LMLG Inbd Door	37.97011	-121.89581
44	LMLG Retract link	37.97008	-121.89582
45	L Wing Tip & Tank	37.97027	-121.89584
46	Engine	37.97022	-121.89592
47	L Elev Bal Wt	37.97029	-121.89591
48	L Ail	37.97029	-121.89586
49	NLG Strut	37.97023	-121.89592
A	First Wire	37.9696	-121.89657
B	Main Impact (wreckage)	37.970264	-121.8959
C	Grnd Scar	37.96996	-121.89605

NOTE: About 3 to 5 lat/long values, when plotted using Google Earth, resulted in component locations that did not agree exactly with the physically-observed locations. The differences were on the order of 10 to 20 feet, which was deemed to be acceptable for the purposes of the investigation. The three most significant components with lat/long discrepancies were:

- a) The engine and the left wing tip (#45); these two items were physically located in the bottom of the ravine
- b) The initial (as evidenced by propeller imprint) impact point ('B'), which was depicted at a slightly higher point on the ravine wall than physically observed

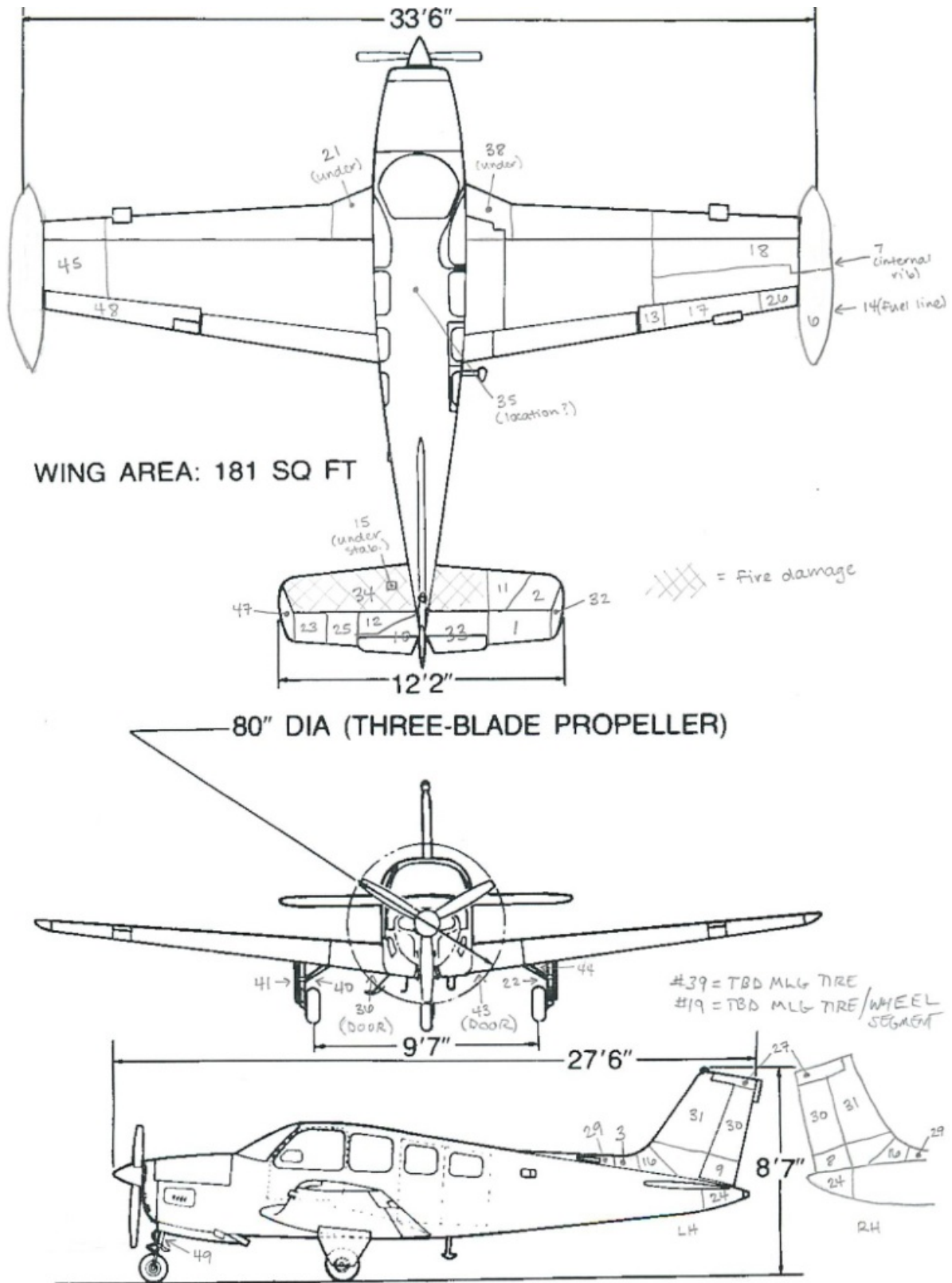


Figure 1 – Three-View with Debris Field Parts Annotated



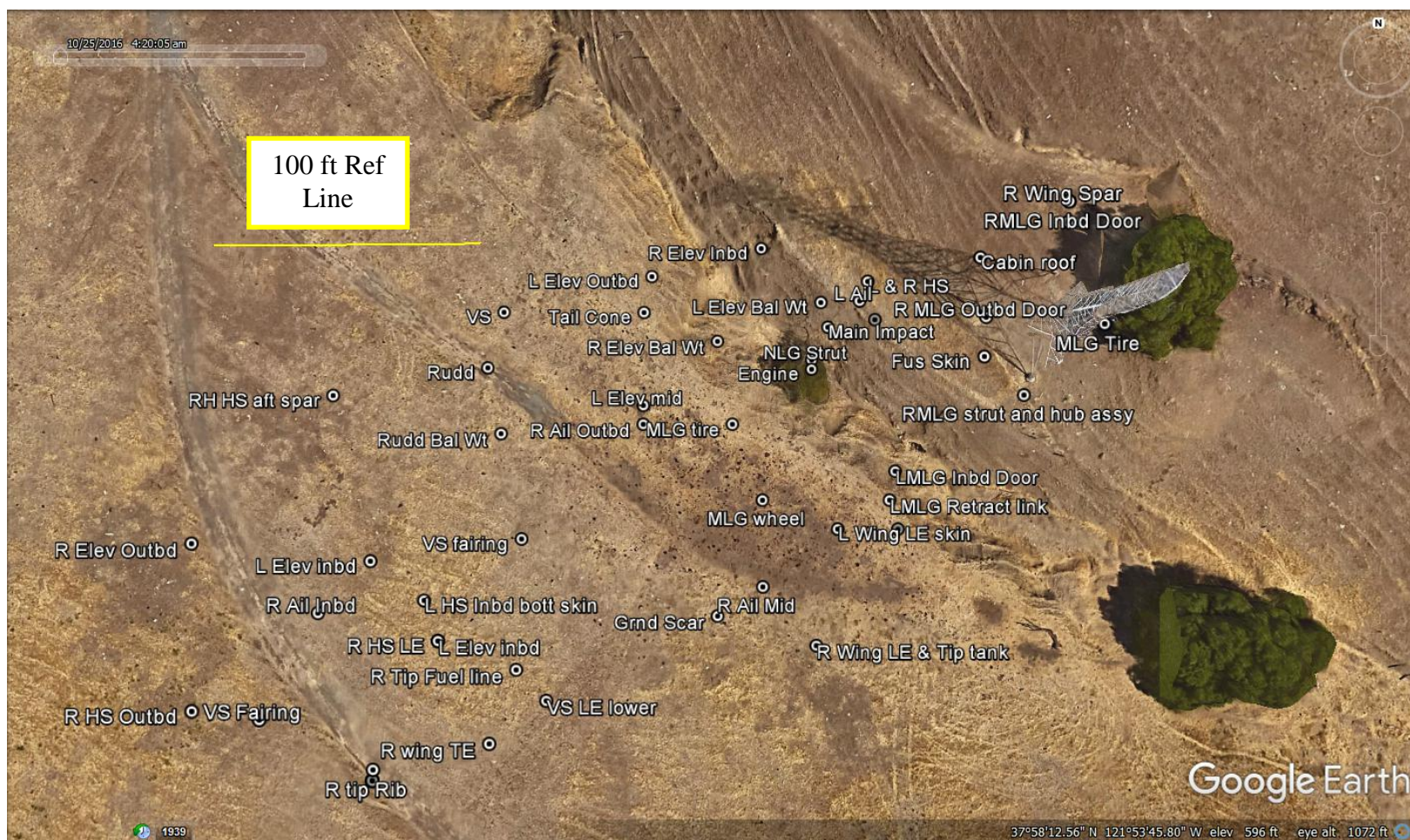


Figure 3 - Wreckage Plot Close-Up

3.0 Powerline Debris Field Observations

Visual examination of the powerline-separated fragments and their debris field yielded the following observations:

- The fragments were primarily from the empennage or right wing, with some later fragments from the left wing
- The plane of the vertical stabilizer and rudder cut/tear line was approximately parallel to the plane defined by the lateral and longitudinal axes of the airplane
 - This is consistent with the airplane being approximately wings level (either upright or inverted) at the time of the powerline strike
- The plane(s) of the wing, horizontal stabilizer & elevator fragment cut/tear lines were irregular and inconsistent with one another; no clear pattern was observed
 - Both elevators and the outboard section of the right HS became separated during the powerline strikes
 - The outboard right wing became separated during the powerline strikes
 - The outboard left wing damage appeared consistent with it becoming separated during the powerline strikes, but the section was found in the main wreckage area
- The plane(s) of the wing fragment cut/tear lines were irregular and inconsistent with one another; no clear pattern was observed

4.0 Other Debris Observations

- All three propeller blades were missing about 1" to 2" of their tips; those tips were never located
 - This appears to be consistent with the tips becoming separated during the wire strikes, and then being dispersed (by centrifugal force) far from the flight path
- The left HS and the inboard section of the right HS were located very close to the main wreckage, and were fire-damaged
- The outboard left wing, including the tip tank, was found in the bottom of the ravine, near the base of the main wreckage area
 - This component was not fire-damaged
- No cabin transparency (window) fragments were observed anywhere in the debris field between the powerlines and main wreckage; all were found in the smoke- and fire-affected main wreckage area
- The main wreckage field was consistent with the airplane coming to rest inverted
 - The engine impact location (as indicated by propeller blade imprints) was downslope of the bulk of the wreckage
 - This inverted attitude was likely the result of the combination of a steep flight path (calculated to be approximately 34° down), and steeply-sloped (but opposite direction) terrain of the ravine wall, which would result in the flight path being approximately perpendicular to the impacted terrain

E. LAYOUT IMAGES

1.0 Left Wing



Figure 4 - Left Aileron



Figure 5 - Left Tip Tank



Figure 6 - Left Tip Tank

2.0 Right Wing



Figure 7 - Right Outboard Wing (front view)



Figure 8 - Right Outboard Wing (side view, with tank ribs)



Figure 9 - Right Tip Tank Ribs



Figure 10 - Right Tip Tank Ribs



Figure 11 - Right Outboard Wing (aft view)



Figure 12 - Right Outboard Wing (aft view)

3.0 Left H/S & Elevator



Figure 13 - Left Horiz Stab and Elevator



Figure 14 - Left Elevator (inboard)



Figure 15 - Left Elevator (outboard)



Figure 16 - Left Horiz Stab (underside)



Figure 17 - Inboard Sections of Left H/S and Elevator



Figure 18 - Front View of Left H/S



Figure 19 - Elevator Torque Fittings

4.0 Right H/S & Elevator



Figure 20 - Right Horiz Stab and Elevator



Figure 21 - Right Horiz Stab and Elevator



Figure 22 - Right H/S and Elevator, plus Elevator Torque Fittings

5.0 V/S & Rudder



Figure 23 - Vertical Stabilizer, Rudder, and Tailcone



Figure 24 - Forward Fragments of Vertical Stabilizer